



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,046	12/27/2005	Manfred Fuchs	24,577-23US	9725
John F Klos Fulbright & Jaworski 2100 IDS Center 80 South Eighth Street Minneapolis, MN 55402				
7590 06/27/2008				
EXAMINER				
ALLISON, ANDRAE S				
ART UNIT				
PAPER NUMBER				
2624				
MAIL DATE				
DELIVERY MODE				
06/27/2008				
PAPER				

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/520,046

**Applicant(s)**

FUCHS, MANFRED

**Examiner**

ANDRAE S. ALLISON

**Art Unit**

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on December 30, 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 12/30/2004.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: The phrase "the sourde dipole" on page 2, lines 13, should read "the source dipole" because the word 'source' is misspelled.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 12-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is no support in the specification for the limitation "magnetoencephalogram" found in claim 16, on page 12.

Claim 13 is being rejected as incorporating the deficiencies of the claim upon which each the claim depends.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-8 are rejected under 35 U.S.C. 102 (b) as being anticipated by Braun et al (NPL Document titled: "Confidence Interval of Single Dipole Locations Based on EEG Data").

As to independent claim 1, Braun discloses a method (method for confidence interval of single dipole locations based on EEG Data, see title) comprising: modeling neural activity as a single equivalent current dipole (ECD) (see page 33, Methods section, [p] [005] - where the single dipole location is estimated; calculating a best fit dipole coordinate (see page 34, method section, [p][007]); computing a confidence interval for the dipole coordinate (see page 34, method section, [p][008]); and displaying the confidence interval (see Fig 2, where the confidence level is displayed).

As to claim 2, Braun teaches the method wherein the step of computing a confidence interval includes computing an error ellipsoid (see page 38, discussion section, [p][004]).

As to claim 3, Braun teaches the method, wherein the step of computing an error ellipsoid includes computing a main axes of the error ellipsoid using a Singular Value

Decomposition (see page 38, introduction section, [p][007], lines 14-16).

As to claim 4, Braun teaches the method, wherein the step of modeling includes assuming the geometric and conductive properties of cortical tissue (see page 37, discussion section, [p][001], lines 18-19).

As to claim 5, Braun teaches the method, wherein the step of computing a confidence interval includes the step determining field distributions for a best fit dipole coordinate and for a modified best fit dipole coordinate (see page 34, method section, [p][008]).

As to claim 6, Braun teaches the method, wherein the step of computing a confidence interval includes the step of computing the difference field distribution (see page 31, introduction section, [p][002], lines 8-10).

As to claim 7, Braun teaches the method, wherein the step of computing a confidence interval includes the step of performing a signal to noise ratio analysis (see abstract).

As to claim 8, Braun teaches the method and further comprising defining a Cartesian coordinate system (see Fig 1).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9-10 and 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braun et al (NPL Document titled: "Confidence Interval of Single Dipole Locations Based on EEG Data") in view of Toshimasa et al, (NPL Document titled: "The Accuracy of Localizing Equivalent Dipoles and the Spatio-Temporal Correlations of Background EEG").

As to independent claim 17, all the limitations are discussed above except: wherein the confidence interval is displayed in its anatomical position. Braun does not teach wherein the confidence interval is displayed in its anatomical position. Toshimasa discloses a method for the accurate localizing of equivalent dipoles (see title) wherein the confidence interval is displayed in its anatomical position (see section 1, page 118, subsection IV, part d). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modified the method for confidence interval of single dipole locations based on EEG Data of Braun with the method for the accurate localizing of equivalent dipoles Toshimasa to accurately localize equivalent dipoles with

residual functions that results in higher accuracy and a faster convergence in the equivalent dipole localization (see abstract).

As to claim 9, note the discussion above, Toshimasa teaches the method, wherein the confidence interval is overlaid on an image obtained through the use of Magnetic Resonance Imaging (MRI)(see page 1118, part d).

As to claim 10, note the discussion above, Toshimasa teaches, wherein the confidence interval is overlaid on an image obtained through the use of Computerized Tomography (CT) (see page 1118, part d).

As to independent claim 11, this claim differs from claim 1 only in that claim 10 is apparatus whereas, claim 1 is method and the limitations a detector, a display and a processor are additively recited. Note the discussion above, Toshimasa Chen teaches a system comprising: a detector (see page 1118, part d), a display (see page 115, section II, [p][005], lines 6-7), and a processor (see page 115, section II, [p][005], lines 6-7)

As to claim 12, note the discussion above, Toshimasa teaches the apparatus, further comprising an imaging source in communication with the processor (see page 1118, part d).

As to claim 13, note the discussion above, Toshimasa teaches the, wherein the

imaging source is an MRI unit (see page 1118, part d).

As to claim 14, note the discussion above, Toshimasa teaches the, wherein the imaging source is a CT scan (see page 1118, part d).

As to claim 15, Braun teach the apparatus, wherein the detector is an electroencephalogram (see page 31, introduction section, [p][001], line 1).

As to claim 16, Braun teach the apparatus, wherein the detector is a magnetoencephalogram see page 31, (introduction section, [p][001], lines 1-2).

As to claim 18, Braun teaches the method, wherein the step of computing a confidence interval includes computing a confidence ellipsoid axes from estimated noise level and different fields strengths (see page 34, method section, [p][008]);).

As to claim 19, note the discussion above, Toshimasa teaches the method, wherein the step of displaying includes the step of receiving a digital image (see page 1118, part d).

As to claim 20, Braun teaches the method, wherein the step of computing a confidence interval includes the step of computing a confidence volume (see abstract).



### ***Conclusion***

The prior art made part of the record and not relied upon is considered pertinent to applicant's disclosure.

Gevins (US Patent No.: 5,331,970) is cited to teach an EEG spatial enhancement method and system.

Abraham-Fuchs (US Patent No.: 5,417,211) is cited to teach a method for the classification of field patterns generated by electrophysiological activities.

Dittrich (US Patent No.: 5,776,063) is cited to teach a method for analysis of ultrasound images in the presence of contrast agent.

Kiyuna (US Patent No.: 6,073,040) is cited to teach an electrophysiological activity estimation method.

Forbes et al (US Patent No.: 6,132,381) is cited to teach an intramyocardial anomalous activity detection by subtracting modeled respiratory effect.

He (US Patent No.: 6,856,830) is cited to teach a method and apparatus of three dimension electrocardiographic imaging

Wegerich (US Patent No.: 6,957,172) is cited to teach a complex signal decomposition and modeling.

### ***Inquires***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrae S. Allison whose telephone number is (571)

Art Unit: 2624

270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Meta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrae Allison

/Andrew W. Johns/  
Primary Examiner, Art Unit 2624

June 19, 2008